CPR Update 2010

Continuing Education Summary

ICEMA

Objectives

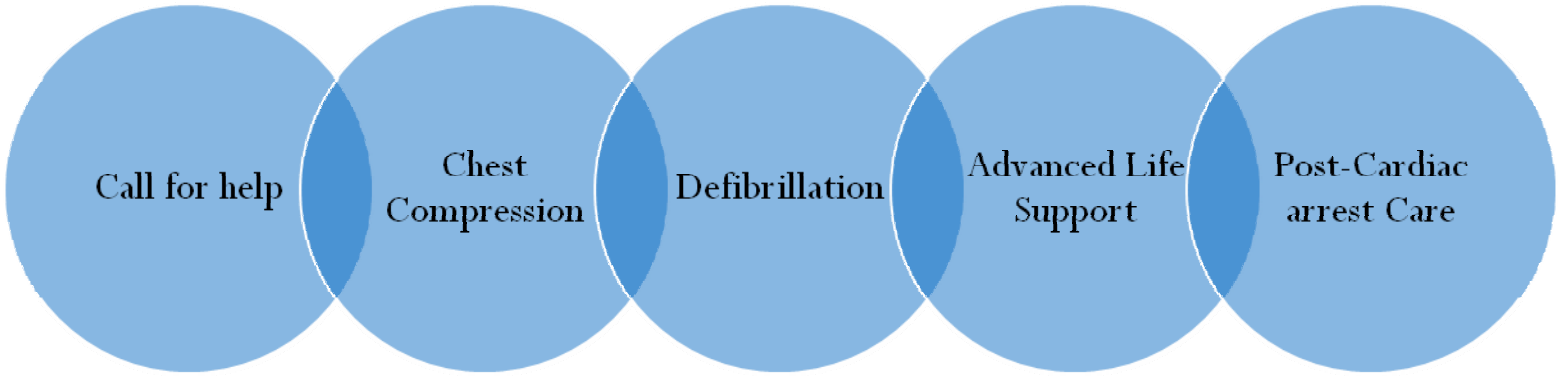
- To inform EMS providers of changes with the new AHA CPR guidelines.
- EMS providers will understand the new sequence of providing CPR.
- At the end of the training module the provider will be able to state how the changes will effect his or her duties.
- The provider will be able to list changes with the new 2010 CPR guidelines.

Why change CPR?

- New data has proven strong CPR in the field has improved patient outcomes.
- Documentation since 2005 has shown that lay rescuer primarily perform CPR with chest compressions only, and that they have similar outcomes to CPR with rescue breathing.
- Minimizing intervals between chest compressions and delivering a shock, improves chances of shock success and improved patient survival.

New Sequence for 2010

- "Chest compressions, Airway, Breathing" (CAB) is the new order of operations from American Heart Association.
- This applies for adults, pediatrics and infants, excluding newborns. Newborn arrest are most likely respiratory and should use the ABC sequence.
- Adult Chain of Survival.



Rationale of changes 2010

- A large number of witnessed cardiac arrest are patients going into a ventricular fibrillation, or pulseless ventricular tachycardia. Early chest compressions and defibrillation are key components to the patient's survival.
- The CAB method allows the responder to save time, and provide blood flow to the heart muscle quickly.
- A lay person is more likely to give CPR if chest compressions are the priority.

Basic Life Support

- Hands-Only (Compressions only) CPR for the untrained lay person. Can be guided by dispatcher on the phone.
- Start chest compression before opening the airway. CAB.
- Allowing the chest to recoil between compressions with a depth of 2 inches. Rate of 100/min.
- As additional providers arrive to scene, responsibilities of tasks should be taken over as ordinarily performed with little interruption of CPR.

BLS Adult Algorithm

- Unresponsive No breathing or no normal breathing (only gasping).
- Activate Emergency Response
- Get defibrillator
- Start CPR
- Push fast
- Push Hard
- Push Hard
- Push Fast
- Check rhythm/shock if indicated Repeat every 2 minutes

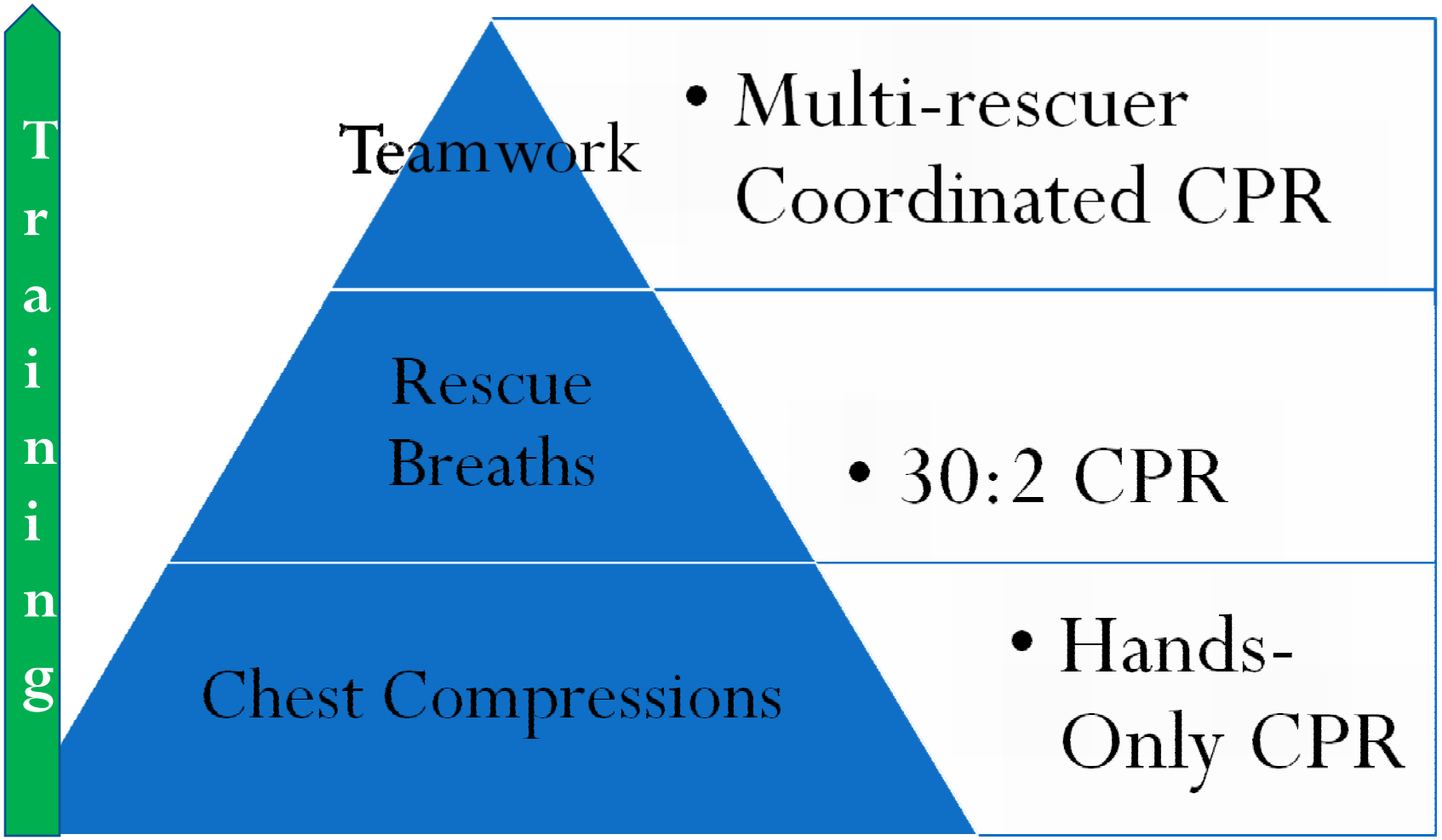
Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

- Any unnecessary interruptions in chest compressions, decreases the effectiveness of the CPR. CPR should be continued until return of spontaneous circulation (ROSC) or termination of resuscitative efforts.
- Healthcare providers should take no longer than a 10 second pulse check to determine if pulses are present.
- Chest compression and rescue breathing at a rate of 30:2.

Role of the Lay Person Rescuer

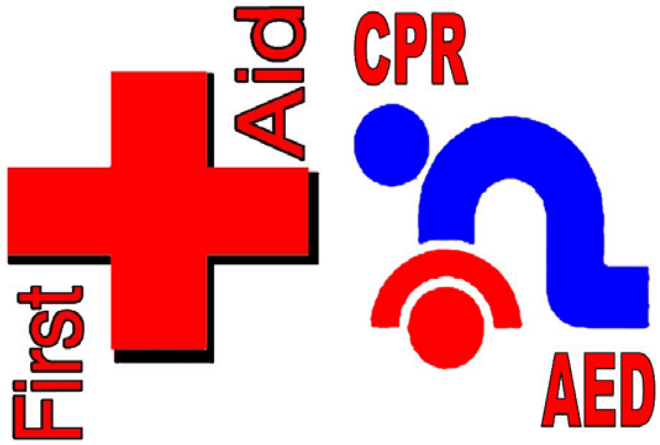
- Initial recognition of the victim is imperative to quick treatment. A patient having a cardiac arrest may have gasping respirations or even have seizure like activity. The rescuer should learn through training these are atypical presentations of a cardiac arrest and alert responders to these findings.
- Lay persons should call EMS when finding unconscious victim and should not attempt to check for a pulse. The lay person should assume that the victim is in a cardiac arrest; suddenly collapses, person is unresponsive, and not breathing normally or not at all.

Rescuer Proficiency



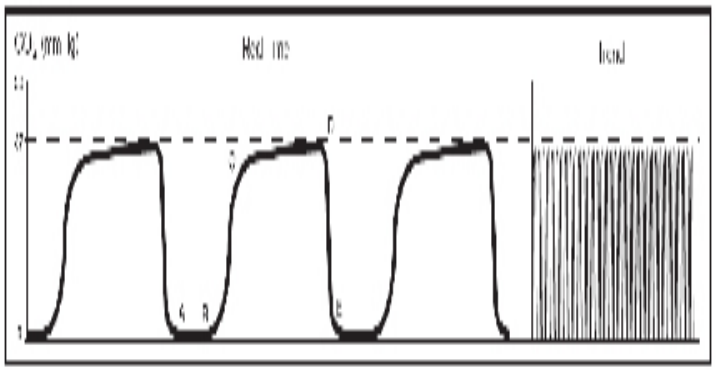
CPR Devices and Techniques

- No device other than the defibrillator has proven to have long-term survival from in the field cardiac arrest.
- Electrical Therapies-Pacing in bradycardia, cardioversion and defibrillation for symptomatic tachycardia are all proven methods to help the chain of survival. No precordial thump.
- CPR prior to defibrillation improves outcomes in cardiac arrest.

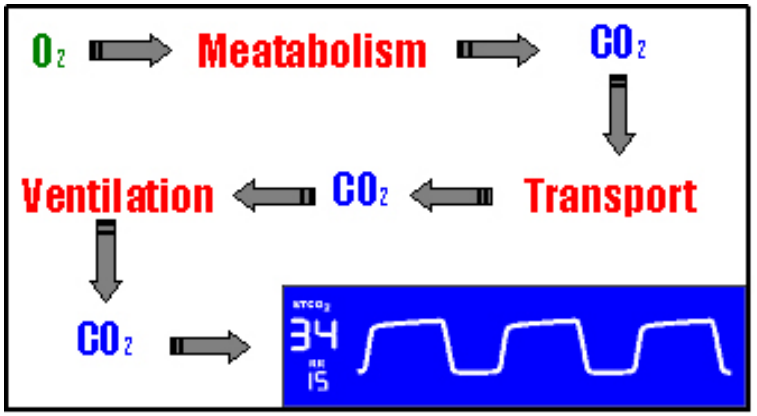


Capnography

- Capnography is recommended for intubated patients.
- This tool is used as an additional indicator of proper tube placement, monitoring CPR quality and detecting ROSC.



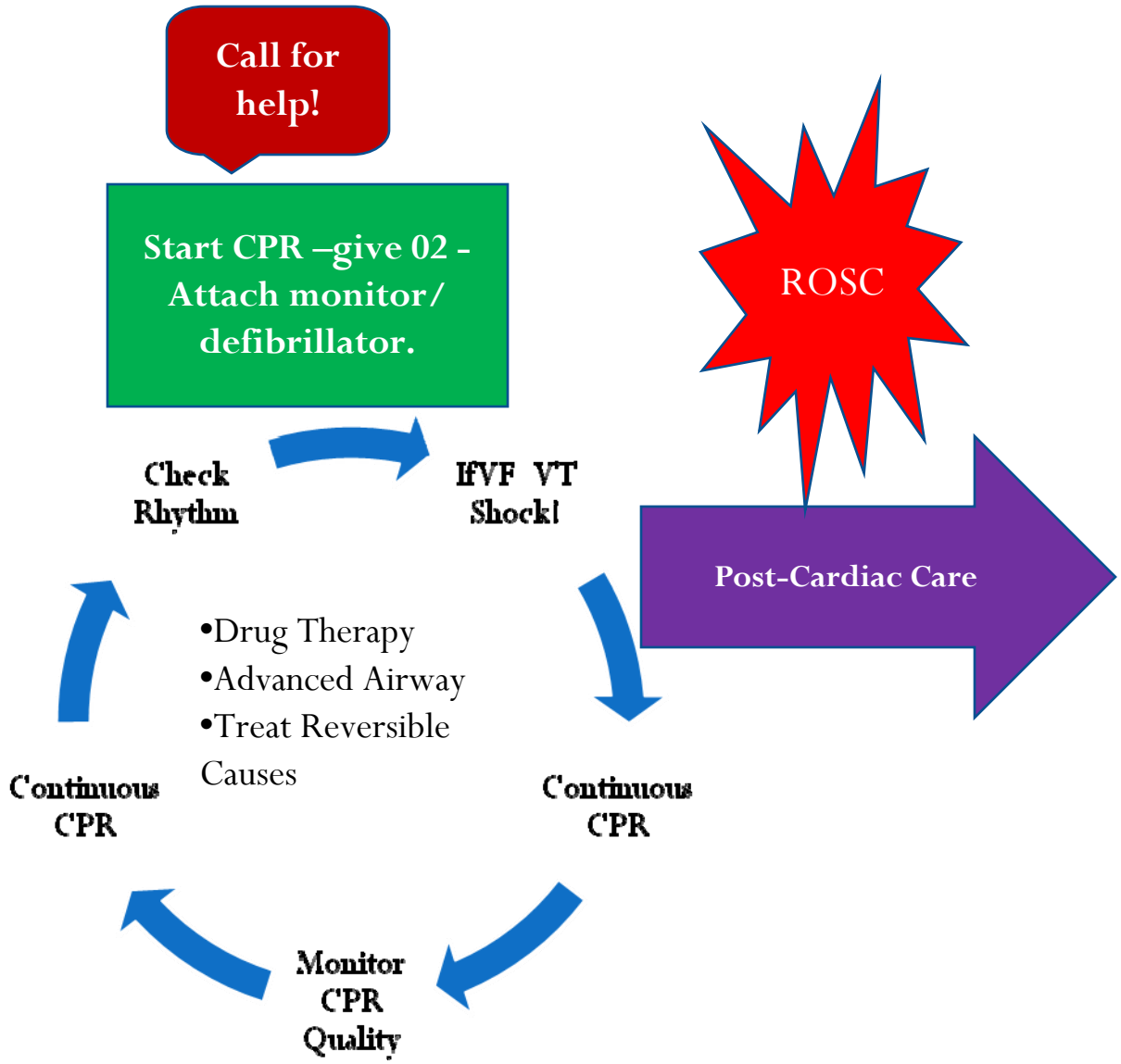
Normal Capnogram



Advanced Cardiac Life Support

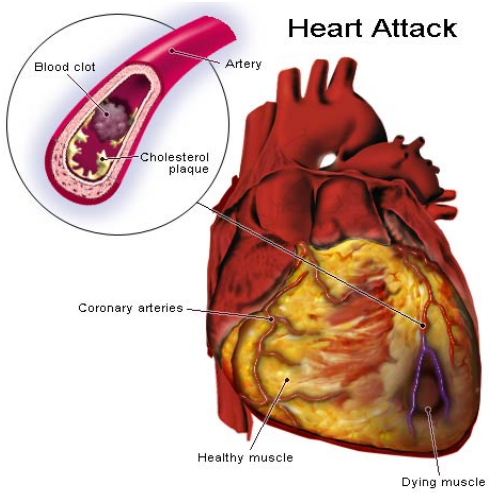
- New fifth link in the chain of survival is post cardiac care.
- Hypothermia treatment studies are showing improvement with neurological, hemodynamic and metabolic function in the ROSC patients.
- ICEMA is currently researching hypothermia treatment in post cardiac arrest care.
- Transportation to most appropriate hospital with comprehensive post-cardiac arrest treatment.
- Post cardiac care should include prevention, treatment of possible multiple organ dysfunction.

ACLS Algorithm



ST Elevation Myocardial Infarction

- Prehospital 12 Lead electrocardiogram, with interpretation by EMS providers and information relayed to Base Station.
- Advanced notification to the receiving hospital are key elements of the treatment and care of a patient having a STEMI.



Pediatric Basic Life Support

- American Heart Association reports that 5% to 15% of pediatric cardiac arrest are related to ventricular fibrillation.
- Studies have also shown that resuscitation from asphyxia benefit from combination of chest compression and ventilations. The CAB method is to be used.
- Compression only CPR is to be used with bystanders who have not been trained with giving ventilations or do not feel comfortable doing so.

Pediatric Advanced Life Support

- Use of the AED with children and infants from ages 1 to 8 years.
- Rescuer needs peds-dose attenuator system.

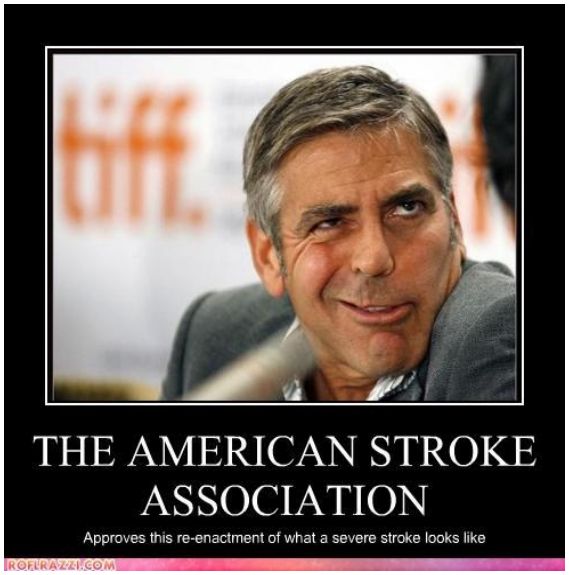
Neonatal Resuscitation

- No changes in sequence with the neonates.
- ABC's, unless known cardiac etiology.
- 3:1 compression to ventilation ration.
- Post resuscitation therapeutic hypothermia.
- Delay in cord clamping.




Adult Stroke

- Stroke is the third leading cause of death in the United States.
- Public education about signs and symptoms of stroke, calling 911, are key to the lay person to recognize, in the early hours of the stroke happening.
- Prehospital programs, and a stroke hospital system are in progress with ICEMA at this time.



Education and Team Approach

- Encouraging continuing education with healthcare provider and the lay public.
- Hands only CPR should be taught to lay persons fearful or unwilling to perform conventional CPR.
- The AED does not require formal training, but training will enhance the student's performance.
- ACLS training should reinforce the team approach in the code situation.

Test Questions

- How do the new CPR guidelines effect your job?
- What were the major changes with CPR in 2010? Give two examples.
- Submit your answers to your EMS educator/Paramedic Liaison to receive one hour of EMS-CE/BRN credit.

Resources/References

- American Heart Association, http://www.heart.org.
- Inland Counties Emergency Medical Agency, http://www.sbcounty.gov/icema.
- American Stroke Association, http://www.strokeassociation.org.
- Any questions please contact Patty Eickholt RN, BSN, PHN, MICN, CEN at ICEMA. 909-388-5823.